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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,474	11/16/2001	Stuart Lawson	GJ-225J	1719

7590  
Iandiorio & Teska  
260 Bear Hill Road  
Waltham, MA 02451-1018

EXAMINER
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KRISHNAMURTHY, RAMESH

ART UNIT	PAPER NUMBER
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3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/28/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/009,474	LAWSON, STUART	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ramesh Krishnamurthy	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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This office action is responsive to communications filed 12/04/2006.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 4, 2006 has been entered.

**Claims 16 – 21 are pending.**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 16 – 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Gyory (US 4,172,696).

Gyory discloses a compressor (10) having valve assembly, comprising a cylinder head (26), port (22) disposed in a valve plate (18), the port being opened and closed by a reed (40) and comprising a tube (28) connected to the valve plate (18), extending vertically into a suction gas chamber that is in communication with the port (22) extending vertically above the port (22) on a side of the port remote from the reed, and the tube (28) being of such a size that, in the use of the valve assembly, the tube contains a column of fluid. A suction chamber is considered inherent to the valve assembly of Gyory and is regarded as the chamber in which the tube (28) is disposed.

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The reed (40) is positioned on a side of the valve plate (18) which closes a piston (16) and a cylinder (14) arrangement, whereby the reed (40) flexes into the cylinder when the reed opens the port (22).

To one of ordinary skill in the art it is clear that the length of the tube (28) is at least several times (certainly more than twice) the diameter of the port (22) and thus has a column of fluid against which the reed in port (22) has to operate. The fluid in tube (28) is a real fluid that has viscosity and thus to one of ordinary skill in the art, it is an inherent feature that the column exerts a damping effect (via friction) on the motion of the reed. Thus, to one of ordinary skill in the art, the tube (28) is inherently a damping means that serves to provide substantial mechanical damping of the motion of the reed.

Recitations pertaining to refrigeration apparatus and a refrigerant are functional in nature and the device disclosed by Gyory is inherently capable of such use.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-213077 or by Becker et al. (US 5,275,541) in view of Gyory (US 4,172,696).

The document JP 10-213077 (equivalent to US 6,116,866) discloses a valve assembly for a pump, comprising a cylinder head (1), port (2) disposed in a valve plate (4), the port being opened and closed by a reed and comprising a tube (8) attached to

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the valve plate (4), extending vertically into a suction gas chamber that is in communication with the port (2) extending vertically above the port (2) on a side of the port remote from the reed, and the tube (8) being of such a size that, in the use of the valve assembly, the tube contains a column of fluid. A suction chamber is considered inherent to the valve assembly of JP 10-213077 and is regarded as the chamber in which the tube (8) is disposed.

To one of ordinary skill in the art it is clear that the length of the tube (8) is at least several times (certainly more than twice) the diameter of the port (2) and thus has a column of fluid against which the reed in port (2) has to operate. The fluid in tube (8) is a real fluid that has viscosity and thus to one of ordinary skill in the art, it is an inherent feature that the column exerts a damping effect (via friction) on the motion of the reed. Thus, to one of ordinary skill in the art, the tube (8) is inherently a damping means that serves to provide substantial mechanical damping of the motion of the reed.

Becker et al. (US 5,275,541) discloses (Fig. 1 for example) a valve assembly of a fluid pump (1) comprising a port (23) disposed in a valve plate (4), the port being opened and closed by a reed (25) and comprising a tube (21) that is attached to the valve plate (4), the tube being in communication with the port (23), extending vertically above the port (23) into a suction chamber (20), on a side of the port remote from the reed, the tube (21) being of such a size that, in the use of the valve assembly, the tube contains a column of fluid.

To one of ordinary skill in the art it is clear that the length of the tube (21a) is at least several times (certainly more than twice) the diameter of the port (24a) and thus

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has a column of fluid against which the reed in port (24a) has to operate. The fluid in tube (21a) is a real fluid that has viscosity and thus to one of ordinary skill in the art, it is an inherent feature that the column exerts a damping effect (via friction) on the motion of the reed. Thus, to one of ordinary skill in the art, the tube (21a) is inherently a damping means that serves to provide substantial mechanical damping of the motion of the reed.

In both JP 10-213077 and by Becker et al. (US 5,275,541) the reed in the suction valve opens into the cylinder space. However, the pressure pulses – for both suction and discharge are generated by movement of a diaphragm rather than a piston. Examiner takes official notice of the mechanical and functional equivalence of a piston to a diaphragm in producing the pressure pulses that cause the suction/discharge valve to operate. Furthermore, the presence of either a piston or a diaphragm has no bearing on the mechanical damping being provided by the tube disposed on the side of the reed that is remote from the piston/diaphragm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the reed valve arrangement of JP 10-213077 or Becker et al. (US 5,275,541) in a piston driven pumping arrangement such as that disclosed by Gyory since the two modes of pressure generation i.e. diaphragm or a piston or mechanically and functionally equivalent to each other.

Recitations pertaining to refrigeration apparatus and a refrigerant are functional in nature and the device disclosed by Gyory is inherently capable of such use.

### ***Conclusion***

6. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Response to Arguments***

Applicant's arguments filed 12/04/2006 have been fully considered but they are not persuasive. Applicant's argument concerning the Gyory reference that element (28) does not comprise a tube is unpersuasive. Figure 1 in Gyory clearly shows (28) to

comprise tube leading from the port (22). This tubular element, although may be referred to a plenum i.e. a chamber does not preclude it being a tubular in shape and it necessarily receives a column of fluid prior to its passage through the port (22) and the suction valve disposed there across. Regarding JP'077 reference, applicant's argument's are unpersuasive in that the tube (8) necessarily receives a column of fluid prior to its passage through the port (2) and the suction valve disposed there across. Regarding Becker reference, valve plate is identified to be the element (4) in the office action and tube (21) extends vertically from the suction port disposed in the valve plate (4). In Becker the reed does open into the space (11) that is in unimpeded fluid communication with the cylinder via pumping chamber (13). The limitation "the reed being positioned on a side of the valve plate which closes a cylinder" is being read here as referring to a reed that is disposed on a side of the valve plate which valve plate closes a cylinder. In Becker's case the valve plate (4) does indeed close the cylinder space corresponding to (13) that lies above the pumping element. Limitation pertaining to "whereby the reed closes faster than without damping, and whereby the refrigerant fluid flows into the inlet side of the valve plate with a smoother flow than without the damping and thereby reduces noise generated " is functional in nature and the arrangements in Gyory, Becker and JP'077 references are necessarily capable of meeting this limitation as in each case the oscillatory motion of the reed is subject to damping by a column of fluid above the reed. In regard to the argument that not one of the applied references is directed to applicant's problem of reed valve dampening, it is noted that the reed valve dampening as recited in the claims involve functional



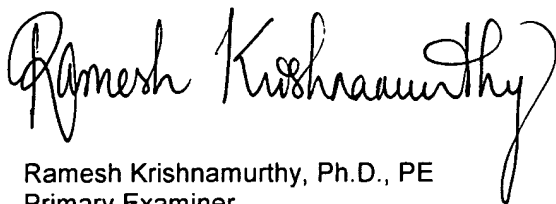
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language that each of the applied reference is capable of and thus each reference meets the functional recitation pertaining thereto.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (571) 272 – 4914. The examiner can normally be reached on Monday - Friday from 10:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel, can be reached on (571) 272 – 4929. The fax phone number for the organization where this application or proceeding is assigned is (571) 273 – 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Ramesh Krishnamurthy". The signature is fluid and cursive, with the first name "Ramesh" and last name "Krishnamurthy" clearly distinguishable.

Ramesh Krishnamurthy, Ph.D., PE  
Primary Examiner  
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